

ABSTRACT

A positive resist composition that includes a base resin component (A) and an acid generator component (B), wherein the component (A) is a copolymer that includes structural units (a-1), which are derived from an (α -lower alkyl) acrylate ester that contains an acid dissociable, dissolution inhibiting group, and also contains an aliphatic cyclic group, structural units (a-2), which are derived from an (α -lower alkyl) acrylate ester that contains a γ -butyrolactone residue, and structural units (a-3), which are derived from an (α -lower alkyl) acrylate ester that contains a hydroxyl group-containing aliphatic polycyclic hydrocarbon group, and the glass transition temperature (T_g) of the copolymer is within a range from 100 to 170°C; together with a method for forming a resist pattern using a lithography process that includes the steps of applying a chemically amplified positive resist composition to a substrate to provide a resist film, conducting selective exposure of the resist film, performing post exposure baking (PEB), and then conducting alkali developing, wherein the PEB temperature in the lithography process is set to a temperature within $\pm 2^\circ\text{C}$ of the PEB temperature at which the line and space pattern formed by this lithography process reaches a maximum.